

HARMONYMANTM

INTELLIGENT PITCH SHIFTER

Owner's Manual



IMPORTANT SAFETY INFORMATION



ATTENTION: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE

The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

SAFETY INSTRUCTIONS

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE SHALL BE CONNECTED TO A MAINS SOCKET OUTLET WITH A PROTECTIVE EARTHING CONNECTION.

The cores in the mains lead are coloured in accordance with the following code:

GREEN and YELLOW - Earth BLUE - Neutral BROWN - Live

As colours of the cores in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or coloured green, or green and yellow.
- The core which is coloured blue must be connected to the terminal marked N or coloured black.
- The core which is coloured brown must be connected to the terminal marked L or coloured red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the units chassis.

CONDUCTOR		WIRE COLOR	
L	LIVE	Normal	Alt
		BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YEL	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

WARNING FOR YOUR PROTECTION READ THE FOLLOWING:

KEEP THESE INSTRUCTIONS

HOLD ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING LIQUID AND NO OBJECT FILLED WITH LIQUID, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS

CLEAN ONLY WITH A DRY CLOTH.

DO NOT BLOCK ANY OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.

ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only with the cart stand, tripod bracket, or table specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

POWER ON/OFF SWITCH: For products provided with a power switch, the power switch DOES NOT break the connection from the mains.

MAINS DISCONNECT: The plug shall remain readily operable. For rack-mount or installation where plug is not accessible, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building.

FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only.

MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent.

IMPORTANT SAFETY INFORMATION

ELECTROMAGNETIC COMPATIBILITY

This unit conforms to the Product Specifications noted on the **Declaration of Conformity**. Operation is subject to the following two conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

Operation of this unit within significant electromagnetic fields should be avoided.

- use only shielded interconnecting cables.

U.K. MAINS PLUG WARNING

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility.

NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET.

Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and **MUST** be ASTA approved to BS1362.



If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private household in the 25 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For Countries not mentioned above, please contact your local authorities for a correct method of disposal.

By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

DECLARATION OF CONFORMITY

Manufacturer's Name: DigiTech
Manufacturer's Address: 8760 S. Sandy Parkway
Sandy, Utah 84070, USA

declares that the product:

Product name: HarmonyMan
Product option: all (requires Class II power adapter that conforms to the requirements of EN60065, EN60742, or equivalent.)

conforms to the following Product Specifications:

Safety: IEC 60065 (7th ed. 2001)

EMC: EN 55013 (2001+A1)
EN 55020 (1998)

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC.

Vice-President of Engineering — MI
8760 S. Sandy Parkway
Sandy, Utah 84070, USA
Date: February 21, 2008

European Contact: Your local DigiTech Sales and Service Office or

Harman Music Group
8760 South Sandy Parkway
Sandy, Utah 84070, USA
Ph: (801) 566-8800
Fax: (801) 568-7583

Warranty

We at DigiTech® are very proud of our products and back up each one we sell with the following warranty:

1. The warranty registration card must be mailed within ten days after purchase date to validate this warranty, or you can register via our website (www.digitech.com).
2. DigiTech warrants this product, when used solely within the U.S., to be free from defects in materials and workmanship under normal use and service.
3. DigiTech liability under this warranty is limited to repairing or replacing defective materials that show evidence of defect, provided the product is returned to DigiTech WITH RETURN AUTHORIZATION, where all parts and labor will be covered up to a period of one year (this warranty is extended to a period of six years when the product has been properly registered by mail or through our website). A Return Authorization number may be obtained from DigiTech by telephone. The company shall not be liable for any consequential damage as a result of the product's use in any circuit or assembly.
4. Proof-of-purchase is considered to be the burden of the consumer.
5. DigiTech reserves the right to make changes in design, or make additions to, or improvements upon this product without incurring any obligation to install the same on products previously manufactured.
6. The consumer forfeits the benefits of this warranty if the product's main assembly is opened and tampered with by anyone other than a certified DigiTech technician or, if the product is used with AC voltages outside of the range suggested by the manufacturer.
7. The foregoing is in lieu of all other warranties, expressed or implied, and DigiTech neither assumes nor authorizes any person to assume any obligation or liability in connection with the sale of this product. In no event shall DigiTech or its dealers be liable for special or consequential damages or from any delay in the performance of this warranty due to causes beyond their control.

NOTE: The information contained in this manual is subject to change at any time without notification. Some information contained in this manual may also be inaccurate due to undocumented changes in the product or operating system since this version of the manual was completed. The information contained in this version of the owner's manual supersedes all previous versions.

Table of Contents

Introduction.....	1
Guided Tour - Front Panel	2
Guided Tour - Rear Panel	5
Using the HarmonyMan™	7
Make Connections	7
Adjust Levels and Tune Your Guitar.....	7
Select a Voicing.....	8
Setting the Key and Scale Automatically or Manually	8
Automatically Set the Key and Scale	9
Manually Set the Key and Scale.....	9
Reset the musIQ™ Feature's Memory.....	9
Play Your Solo.....	10
Store Settings to a Memory Location	10
Load Settings from a Memory Location.....	11
Types of Shifting.....	13
Triad-Centered Shifting	12
Scalic Shifting	13
Fixed (Chromatic) Shifting	14
Detune Shifting	14
Shifting Example for the key of C Major / A Minor	15
Mode Reference Table.....	16
Using the Mode Reference Table	16
Using the musIQ Feature	17
One Guitar (No Sidechain).....	17
Two Guitars (Sidechain).....	18

Table of Contents

Connection Diagrams.....	20
Electric Guitar with Pre-Harmony Distortion.....	20
Single Guitar Using Amp Send/Return for Distortion	21
Two Guitars with Pre-Harmony Distortion	22
Acoustic Guitar to Mixer/P.A.....	23
Troubleshooting	24
Specifications	25

Introduction

Congratulations and thank you for purchasing the HarmonyMan™!

The HarmonyMan is the world's first guitar pedal that produces multi-part guitar harmonies on guitar solos by analyzing the chords you were playing before the solo. Simply play a song and hit the Harmony On/Off footswitch when you solo to get amazing multi-part guitar harmonies.

Included Items

HarmonyMan

PS0913-B Power Supply (9 VAC, 1300 mA)

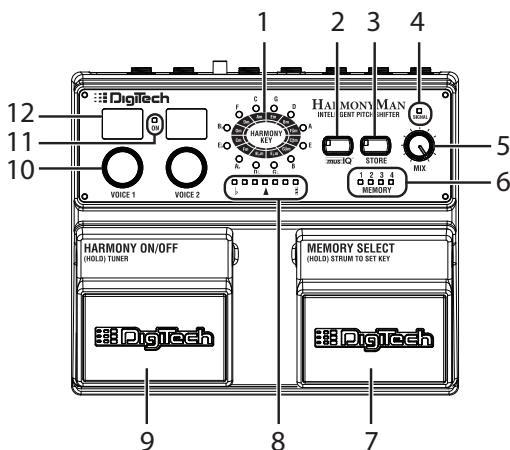
This Manual

Registration Card

The HarmonyMan features include:

- 3-part guitar harmony with no programming.
- Ultra clean, low-latency harmonies.
- Unique Key Display updates dynamically in response to your playing. A musically intelligent “Circle of 5ths” layout puts musically related keys (that share most notes) beside each other.
- Two independently selectable voicings including two intelligent shifting modes, unison/detune, and straight chromatic shifts.
- Strum Key lets you easily set the key and scale by simply strumming your guitar—perfect for songs that start with a solo.
- Sidechain Input lets you solo while the HarmonyMan harmonies dynamically adapt to a rhythm/second guitarist's chord changes.
- Guitar tuner with easy-to-read indicator lights.
- 4 custom memory locations with footswitch access.
- Programmable Mix knob controls the mix between the lead and the harmonies. The mix can range from 100% dry to 100% wet.
- Pre-Harmony Distortion Loop – ¼” distortion effects loop lets you apply distortion before the harmonies are generated to create a harmony-with-distortion sound.
- Mono or Stereo Outputs.
- True analog bypass.

Guided Tour - Front Panel



1. Harmony Key Display

The Harmony Key Display indicates the key and scale that will be used for intelligent harmony note generation. When the musIQ™ button is enabled, the display shows the automatic harmony key based on the chords that have recently been played. When the musIQ button is disabled, the display shows the manual harmony key. When the display shows a circling red LED, the HarmonyMan™ is waiting for guitar chords in order to identify the harmony key.

2. musIQ™ Button

When the musIQ button is enabled, the HarmonyMan overrides the manual key with an automatic harmony key based on the chords that have recently been played. When the musIQ button is disabled, the HarmonyMan displays the most recent manual harmony key and uses this key when generating scale-based harmonies. When you manually set the key and scale (see page 8 for more information), the musIQ button light flashes while the Memory Select footswitch (7) is held down to indicate that the unit is listening for a new key.

Guided Tour - Front Panel

3. Memory Store Button

The Memory Store button stores the current voicings (Voice 1 and Voice 2), mix setting, and key and scale to the active memory. Any time changes are made to the Voice knobs (10) or Mix knob (5), the Memory Store button lights to show that the changes have not yet been stored. Additionally, the Memory Store button lights whenever the harmony key has been manually changed using the Strum To Set Key function. (For more information about saving and loading key and scale, see “Load Settings from a Memory Location” on page 11.) When the Store button is pressed, the new changes are stored to the active memory and the light goes out.

4. Signal LED

The Signal LED turns green when a guitar signal is detected in the Guitar Clean Input or Distortion Return Input, yellow when the guitar signal is approaching levels that may clip, and red when the signal may be clipping and may degrade the ability of the HarmonyMan™ to detect the guitar notes. The Signal LED does not indicate Sidechain Input signal level.

5. Mix Knob

The Mix knob controls the mix of the lead and harmony signals when the effect is on. The mix can be stored as part of a custom harmony voicing to any of the four memories (any time the Mix knob is adjusted, the Memory Store button's LED will illuminate, indicating that the change must be stored to a memory, or it will be lost when the HarmonyMan is powered down or the memory is changed). At the full minimum position only lead dry (no effect) is heard. At the full maximum position, only harmony signal (no lead dry) is heard.

6. Memory LEDs

The Memory LEDs indicate which memory is currently active. From the factory, different sets of voicings, mix settings, and harmony key have been pre-programmed but you can customize each memory for your particular needs. For example, Memory 1 could be set to a stereo detune, Memory 2 could be used for 3rds up intelligent harmony, Memory 3 could add a 5th up harmony, and Memory 4 could have an octave-down voicing with mix at maximum for a bass guitar sound.

Guided Tour - Front Panel

7. Memory Select Footswitch

The Memory Select footswitch cycles through the four available memories. Each memory recalls the most recently stored voicings, mix level, and manual harmony key making it easy to set up several different voicing combinations and harmony keys for a single gig without having to touch any other controls. Additionally, this footswitch can be used to manually set the key and scale (see page 8 for more information).

8. Tuner Display

When the tuner is active, the tuner LEDs show how sharp or flat the current note is. The current note is displayed on the Voice 1 Display (12).

9. Harmony On/Off Footswitch

The Harmony On/Off footswitch turns the harmony effect on and off. Additionally, this footswitch can be held down to engage the guitar tuner (the output is muted while the tuner is active). When the this footswitch is off, the HarmonyMan™ provides true analog bypass.

10. Voice Knobs

The Voice Knobs set the voicing for each of the two harmonies which are displayed above on the Voicing Displays (12). Voicings include two types of intelligent shifting, detuning, and fixed chromatic shifts from -12 to 12 semitones, as well as a two octave down shift. See pages 12-14 for lists of available voicings.

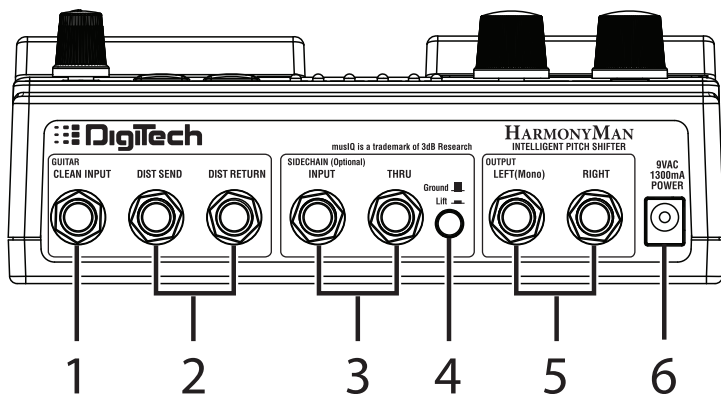
11. On LED (Harmony Indicator Light)

When this LED is lit, harmonies are active and can be heard. When the LED is off, the HarmonyMan™ is bypassed. These states of the Harmony LED are toggled by the Harmony On/Off footswitch (9). When this LED is flashing, the tuner is active.

12. Voicing Displays

The Voicing Displays show the currently selected voicing for the two HarmonyMan™ voices. See pages 12-14 for lists of available voicings. When the tuner is active, the Voice 1 display shows the current note being tuned.

Guided Tour - Rear Panel



1. Guitar Clean Input

Connect your clean guitar signal here for chord recognition. This is the same signal that will be shifted to generate harmonies if there is nothing connected to the Distortion Return jack.

2. Distortion Send / Return

Many guitarists prefer to add distortion before adding harmony signals. To do this, connect the Dist Send jack to the input of your distortion pedal, and connect the output of the distortion back to the Dist Return. Now the musIQ™ feature's chord recognition will still be based on your clean guitar signal, but the pitch shifting will be applied as a post-distortion effect.

3. Sidechain Input / Thru

Optionally connect a second clean guitar so another guitarist can play chords while you solo over them – any of the triad-centered harmony voicings will respond dynamically to the chord changes. The analog Sidechain Thru provides a clean signal that can then be processed and sent to the rhythm guitar amp.

Guided Tour - Rear Panel

4. **Ground Lift**

Eliminates most “hum” problems with having two guitars and amps connected to the HarmonyMan™. If you hear hum or buzz coming from your amp, try pressing this button.

5. **Main Outputs**

Left only (mono) output, or stereo output. When stereo output is used, the harmonies are hard panned left and right and the lead is panned center.

6. **Power Supply Jack**

Connect only the included PS-0913B power supply here.

Using the HarmonyMan™

The following section walks you through a basic setup and some basic use. For additional setup options, refer to the diagrams on pages 20-23.

Make Connections

Before connecting the HarmonyMan™, make sure that the power to your amplifier or P.A. is off and that the HarmonyMan is plugged into the wall and powered on. There is no power switch on the HarmonyMan. To turn the HarmonyMan on or off, connect or disconnect the included PS-0913B power supply from the Power Supply jack.

1. Connect your guitar to the **Clean Input** jack.
2. Make sure your amp or P.A. system volume is turned all the way down.
3. Connect the **Left (Mono)** output jack to your amp or mixer input.

Adjust Levels and Tune Your Guitar

1. Observe the **Signal** LED above the **Mix** knob and play your guitar. Adjust the output level of your guitar until the **Signal** LED stays lit green while you play at performance level. (The **Signal** LED turns green when a guitar signal is detected in the **Guitar Clean Input**, yellow when the guitar signal is approaching levels that may clip, and red when the signal may be clipping and may degrade the ability of the HarmonyMan to detect the guitar notes.)
2. Gradually increase the volume of your amp or PA until you reach a comfortable listening level.
3. Press and hold the **Harmony On/Off** footswitch until the **On** LED flashes and then release the **Harmony On/Off** footswitch.
4. Tune your guitar. The **Voice 1 Display** shows the note you're playing, and the **Tuner Display** indicates if the note is sharp or flat.
5. When you're finished tuning, press either footswitch to exit tuner mode.

Using the HarmonyMan™

Select a Voicing

1. Turn the **Voice 1** and **Voice 2** knobs counter-clockwise until both Voicing Displays read **0F**.
2. Now turn the **Voice 1** knob clockwise to select a voicing. For this example, select **3H** (a third up) for Voice 1, and leave Voice 2 **0F**. See pages 12-14 for descriptions of available voicings.

Setting the Key and Scale Automatically or Manually

Using its built-in musIQ™ technology, the HarmonyMan™ can determine what key you're in just by listening to the chords you're playing. This is very useful when you don't want to set the key for every song. Just leave the musIQ button enabled and the HarmonyMan will choose the best key automatically. Alternatively, you can manually set the key and scale you want to use by holding down the Memory Select footswitch and strumming a chord. Both methods for setting the key are described on page 9.

When the musIQ button is enabled, the color of the LED in the Harmony Key Display indicates how obvious the current key is, based on the chord progression you're playing.

Note: A chord progression provides better results than a single chord when the musIQ feature is determining the key and scale automatically.

A green LED in the Harmony Key Display indicates the key and scale are recognized and are set. A yellow LED means some ambiguity exists regarding the key and scale, but harmonization continues using that key and scale.

A single red LED cycling around the Harmony Key Display indicates that the HarmonyMan's key recognition memory needs chord information to determine the key and scale. Note that when this occurs and the harmony is turned on, the most recent automatic harmony key and scale are displayed and used for harmony. If the musIQ button is disabled, the most recent manually set key and scale are used.

Using the HarmonyMan™

Automatically Set the Key and Scale

1. Make sure the **musIQ™** button is lit. (If it's not lit, press it once.)
2. Make sure the **On** LED is not lit. If it is lit, press the **Harmony On/Off** footswitch once.
3. Play some chords until one of the **Harmony Key Display** LEDs turns yellow and then turns green. The key and scale have now been set. Note that even when a **Harmony Key** LED is yellow, that key and scale will be used if the harmonies are engaged.

Manually Set the Key and Scale

1. Press and hold the **Memory Select** footswitch for approximately 1 second. The **musIQ** button will flash and a red LED will cycle around the **Harmony Key Display**.
2. Continue to hold down the footswitch and strum a chord to set the key and scale accordingly. For example, if you strum an Am chord, the C/Am LED in the **Harmony Key Display** turns green. The output is muted when manually setting the key and scale.
3. Release the **Memory Select** footswitch.

Reset the musIQ™ Feature's Memory

If you have manually set the key, but want the HarmonyMan™ to automatically detect the key again, you can reset the musIQ feature's memory and turn the musIQ feature back on. Resetting the musIQ memory erases any chordal history that previously existed.

1. Make sure the **On** LED is not lit. If it is lit, turn it off using the **Harmony On/Off** footswitch.
2. Press and hold the **Memory Select** footswitch for approximately 1 second. The musIQ button flashes and a red LED cycles around the **Harmony Key Display**.
3. Release the **Memory Select** footswitch without strumming a chord. In this example, any previous note information in the musIQ feature's memory is cleared and the musIQ feature is enabled. This will result in faster key tracking, for example, when starting a new song after a previous song has ended.

Using the HarmonyMan™

Play Your Solo

Once you have the key and scale recognized, you can then enable the harmonies and play your solo.

1. Press the **Harmony On/Off** footswitch so that the **On** LED is lit.
2. Play a solo in the key and scale that is indicated by the **Harmony Key Display**.
3. Turn the **Mix** knob counter-clockwise to hear more lead guitar and less harmony, or turn the knob clockwise to hear more harmony and less lead guitar.

Note: Any time you change the voicing or mix from what's stored in the current memory, the **Store** button's LED illuminates. Changes will be lost when you switch to a new memory or turn off the HarmonyMan unless you store the changes to the current memory location.

Store Settings to a Memory Location

1. Press and release the **Memory Select** footswitch repeatedly until Memory 1 is selected.
2. Choose your harmony voicings for Voice 1 and Voice 2, and set the Mix knob to the desired level. If you want to store a key and scale that is different from the key and scale that is currently displayed, set the harmony key manually (see page 8). The **Store** button's LED illuminates when any of these settings are changed.
3. Press and release the **Store** button. The current settings have now been stored to Memory 1. You can now recall these settings at any time by pressing the **Memory Select** footswitch until Memory 1 is selected.

Note: If the **musIQ™** button is illuminated when the Store button is pressed, the automatic harmony key that is displayed is saved and used as the manual harmony key. Also, when stepping through the different memory locations, the position of the Mix knob does not necessarily reflect the actual mix level since the mix is stored independently into each memory.

Using the HarmonyMan™

Load Settings from a Memory Location

Press and release the **Memory Select** footswitch repeatedly until the desired memory location is selected. The previously stored mix, voice settings, and harmony key are loaded.

Note: If the **musIQ™** button is lit, the displayed harmony key may not match the recalled harmony key because when the musIQ feature is enabled, the automatic key overrides the stored manual key. If you press the musIQ button to turn this feature off, the recalled manual harmony key will then be displayed.

Types of Shifting

The HarmonyMan™ features four different types of shifting depending on the voicing that is selected using the Voice Knobs. The Triad-Centered, Scalic, and Fixed Shifting voicings use a new ultra-clean, low-latency shifter technology optimized for single note guitar soloing. The Detune voicings are optimized for multi-note input and sound great with full chords.

Triad-Centered Shifting

Triad-centered shifting creates musically correct harmonies that are based around root, 3rd, and 5th chordal structure along with their inversions. Triad-centered voicings “favor” certain chordal structures. There are two sets of triad-centered voicings (described below), indicated by uppercase (LL, for example) and lowercase letters (ll, for example) in the Voicing Displays. The uppercase voicings are optimized for major scales, while the lowercase voicings are optimized for minor scales.

When a rhythm guitar signal is plugged into the Sidechain Input jack, the triad-centered harmonies follow the chord progression of the rhythm guitar to create the most dynamic harmony line possible.

Triad-Centered Voicings (Note: exact shifts vary depending on input note and currently detected scale or chord when using the Sidechain Input).

Tonality	Display	Description
Major (Ionian Mode)	LL	Lower - Input is shifted approximately a 6th scale tone down.
	L	Low - Input is shifted approximately a 3rd scale tone down.
	H	High - Input is shifted approximately a 3rd scale tone up.
	HH	Higher - Input is shifted approximately a 6th scale tone up.
Minor (Aeolian Mode)	ll	Lower - Input is shifted approximately a 6th scale tone down.
	l	Low - Input is shifted approximately a 3rd scale tone down.
	h	High - Input is shifted approximately a 3rd scale tone up.
	hh	Higher - Input is shifted approximately a 6th scale tone up.

Types of Shifting

Scalic Shifting

Intelligent scalic shifting creates musically correct harmonies for which the shift amount varies in order to create harmonies that are always in the current harmony key. For example, if the current voicing is set to $\mathfrak{3H}$ and the harmony key is G/Em, then an input note of B produces a shift of +3 semitones (minor 3rd interval) resulting in a harmony note of D. But an input note of D produces a shift of +4 semitones (major 3rd interval) resulting in a harmony note of F#. Note that although octave shifts are included in this category for convenience, they result in fixed shifts for all notes and scales.

Scalic Voicings	
Display	Description
$\mathfrak{2O}$	Input is shifted down by 2 octaves.
$\mathfrak{8L}$	Input is shifted down by 1 octave.
$\mathfrak{6L}$	Input is shifted to the 6th scale tone down.
$\mathfrak{5L}$	Input is shifted to the 5th scale tone down.
$\mathfrak{4L}$	Input is shifted to the 4th scale tone down.
$\mathfrak{3L}$	Input is shifted to the 3rd scale tone down.
$\mathfrak{3H}$	Input is shifted to the 3rd scale tone up.
$\mathfrak{4H}$	Input is shifted to the 4th scale tone up.
$\mathfrak{5H}$	Input is shifted to the 5th scale tone up.
$\mathfrak{6H}$	Input is shifted to the 6th scale tone up.
$\mathfrak{8H}$	Input is shifted up by an octave.

Types of Shifting

Fixed (Chromatic) Shifting

Fixed (or chromatic) shifting applies the same shift to all notes regardless of the input note or harmony key, resulting in a shifted signal that is transposed from the input by a fixed number of semitones.

Fixed (Chromatic) Shift Voicings	
Display	Description
$- \text{ } l^2 \text{ to } - \text{ } l$	Input is shifted down by the indicated number of semitones.
$l \text{ to } l^2$	Input is shifted up by the indicated number of semitones.

Detune Shifting

Detune shifting applies a very small fixed amount of pitch shifting to a voice in order to produce a thicker overall sound. Typically each voice is detuned in opposite directions. This is done automatically on the HarmonyMan™ because Voice 1 is always detuned up and Voice 2 is always detuned down. Four detune shifts are provided ranging from 5 cents to 30 cents (one cent is 1/100 of a semitone).

Detune Voicings	
Display	Description
$d \text{ } l$	Narrow Detune: Input is shifted up by 5 cents for Voice 1, and down by 5 cents for Voice 2.
d^2	Medium Detune: Input is shifted up by 10 cents for Voice 1, and down by 10 cents for Voice 2.
d^3	Wide Detune: Input is shifted up by 20 cents for Voice 1, and down by 20 cents for Voice 2.
d^4	Very Wide Detune: Input is shifted up by 30 cents for Voice 1, and down by 30 cents for Voice 2.

Types of Shifting

Shifting Example for the key of C Major / A Minor

For all notes in the C major scale, the following table shows the harmony note that would be generated for each Triad-Centered and Scalic voicing. The arrows indicate whether the output note is above or below the input note. Two arrows are used to indicate a two octave difference.

Triad-Centered Voicings *

C Major

	LL	L	H	HH
C	E▼	G▼	E▲	G▲
D	F▼	B▼	F▲	B▲
E	G▼	C▼	G▲	C▲
F	A▼	D▼	A▲	D▲
G	C▼	E▼	C▲	E▲
A	C▼	F▼	C▲	F▲
B	D▼	G▼	D▲	G▲

A Minor

	LL	L	h	hh
A	C▼	E▼	C▲	E▲
B	D▼	G▼	D▲	G▲
C	E▼	A▼	E▼	A▲
D	F▼	B▼	F▲	B▲
E	A▼	C▼	A▲	C▲
F	A▼	D▼	A▲	D▲
G	B▼	E▼	B▲	E▲

Scalic Voicings (C Major)

	2a	8L	6L	5L	4L	3L	3H	4H	5H	6H	8H
C	C▼▼	C▼	E▼	F▼	G▼	A▼	E▲	F▲	G▲	A▲	C▲
D	D▼▼	D▼	F▼	G▼	A▼	B▼	F▲	G▲	A▲	B▲	D▲
E	E▼▼	E▼	G▼	A▼	B▼	C▼	G▲	A▲	B▲	C▲	E▲
F	F▼▼	F▼	A▼	B▼	C▼	D▼	A▲	B▲	C▲	D▲	F▲
G	G▼▼	G▼	B▼	C▼	D▼	E▼	B▲	C▲	D▲	E▲	G▲
A	A▼▼	A▼	C▼	D▼	E▼	F▼	C▲	D▲	E▲	F▲	A▲
B	B▼▼	B▼	D▼	E▼	F▼	G▼	D▲	E▲	F▲	G▲	B▲

* When a rhythm guitar is connected to the Sidechain Input, the triad-centered harmony notes will vary depending on the chords being played on the rhythm guitar.

Mode Reference Table

Using the Mode Reference Table

For musicians who utilize musical modes, the table below shows what keys and scales on the Harmony Key Display correspond to the different modes and their keys and scales. For example, if you want to play in the mode of C Lydian, the correct HarmonyMan™ key and scale is G Maj. See page 8 for more information on setting the HarmonyMan key and scale.

	Mode						
Key	Ionian (Natural Major)	Dorian	Phrygian	Lydian	Mixolydian	Aeolian (Natural Minor)	Locrian
A	A Maj	G Maj	F Maj	E Maj	D Maj	C Maj	B \flat Maj
B	B Maj	A Maj	G Maj	G \flat Maj	E Maj	D Maj	C Maj
C	C Maj	B \flat Maj	A \flat Maj	G Maj	F Maj	E \flat Maj	D \flat Maj
D	D Maj	C Maj	B \flat Maj	A Maj	G Maj	F Maj	E \flat Maj
E	E Maj	D Maj	C Maj	B Maj	A Maj	G Maj	F Maj
F	F Maj	E \flat Maj	D \flat Maj	C Maj	B \flat Maj	A \flat Maj	G \flat Maj
G	G Maj	F Maj	E \flat Maj	D Maj	C Maj	B \flat Maj	A \flat Maj

Using the musIQ™ Feature

When the musIQ™ feature is enabled, it “listens” to your guitar playing in order to automatically determine the best notes for harmonization with Triad-Centered and Scalic Voicings. The way in which the HarmonyMan™ does this is slightly different depending on whether or not you have a guitar connected to the Sidechain Input.

One Guitar (No Sidechain)

When only one guitar is plugged into the HarmonyMan (via the Clean Guitar Input jack), the HarmonyMan uses this clean guitar signal to determine the key and scale. In order for the HarmonyMan to actively follow the key of the song, the musIQ button must be on and the Harmony Effect must be turned off. During this time the musIQ feature analyzes the clean guitar signal and updates the Harmony Key Display.

When the Harmony Key Display shows a circling red LED, the HarmonyMan does not currently have any information to determine the key and scale. When the key has been set, but some uncertainty exists, the Harmony Key Display shows a yellow LED for that key. When the key is determined and certainty exists, the LED turns green. Note that the key chosen for harmonies does not always match what is considered to be the key of the song. An example would be that a song in G that uses the Mixolydian mode would typically sound best with harmonies in the key of Cmaj / Am.

Note that as soon as the harmony effect is turned on (by pressing and releasing the Harmony On/Off footswitch), the current harmony key shown in the Harmony Key Display (whether yellow or green) is locked in and will not change, even if the musIQ button is illuminated. This ensures that the guitar solo that is being harmonized will not cause the key to change inadvertently. Once the harmony is turned off, the monitoring of the key by the musIQ feature will continue.

Using the musIQ™ Feature

The following table summarizes how the musIQ™ feature works when the Sidechain Input is NOT used:

No Sidechain Signal	Effect on Triad-Centered and Scalic Voicings
Harmony Effect OFF	<ul style="list-style-type: none">Analyzes lead guitar signal to determine best key for harmony.Key is shown on the Harmony Key Display in yellow (when uncertain) or green (when certain).
Harmony Effect ON	<ul style="list-style-type: none">Current key is locked, and chord analysis is frozen until Harmony is turned off.

Two Guitars (Sidechain)

When the HarmonyMan™ detects that a mono cable is connected to the Sidechain input, the musIQ function determines the key and scale of the song using the Sidechain Input instead of the Guitar Clean input. Furthermore, when any of the Triad-Centered voicings are selected, the Sidechain signal is analyzed in real-time to determine the chord progression, and this chord progression is used to create the most dynamic harmonies possible. Typically, the Sidechain signal comes from a live rhythm guitar player or a pre-recorded accompaniment signal from a source like the DigiTech® JamMan™ Looper.

Note: The Sidechain chord analysis has been optimized for rhythm guitar. For best results, the Sidechain signal should contain full chords strummed in a steady rhythm.

The Harmony Key Display functions differently when a Sidechain signal is detected: the current key is shown as a green LED, and the current detected chord is shown as a yellow LED. This is how the HarmonyMan tells you that the rhythm guitar signal is affecting the harmonies. Note that when using the Sidechain Input, the Harmony Key Display continues to react even when the harmony is turned on.

Using the musIQ™ Feature

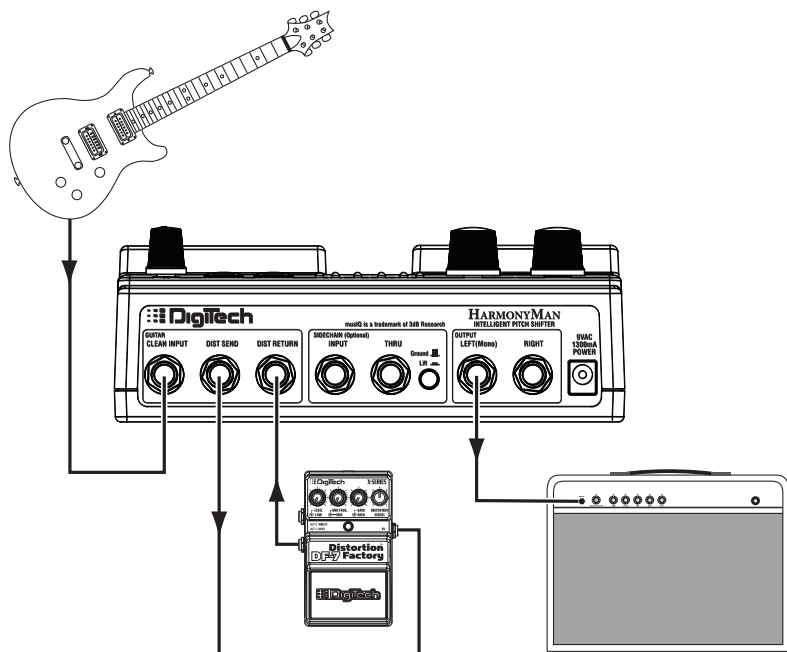
If you want to stop the harmonies from responding to the Sidechain signal, press and hold the Memory Select footswitch and strum a chord to set a new key and scale. This will automatically turn off musIQ™ and cause all harmonies to be based on the strummed scale rather than the Sidechain Input (See “Manually Set the Key and Scale” on page 9 for more information).

The following table summarizes how the musIQ feature works when the Sidechain Input is used:

Sidechain Signal Connected	Effect on Triad-Centered Voicings	Effect on Scalic Voicings
Harmony Effect OFF	<ul style="list-style-type: none">Analyzes Sidechain Input Signal to determine best key for harmony.Key is shown on the Harmony Key Display in green.Current Sidechain Input chord is shown on the Harmony Key Display in yellow.	<ul style="list-style-type: none">Analyzes Sidechain Input Signal to determine best key for harmony.Key is shown on the Harmony Key Display in green.Current Sidechain Input chord is shown on the Harmony Key Display in yellow.
Harmony Effect ON	<ul style="list-style-type: none">Analysis of Sidechain Input Signal continues.Same display as when Harmony is OFF.Harmony reacts to current key as well as chord changes.	<ul style="list-style-type: none">Analysis of Sidechain Input Signal continues.Same display as when Harmony is OFF.Harmony reacts to current key only.

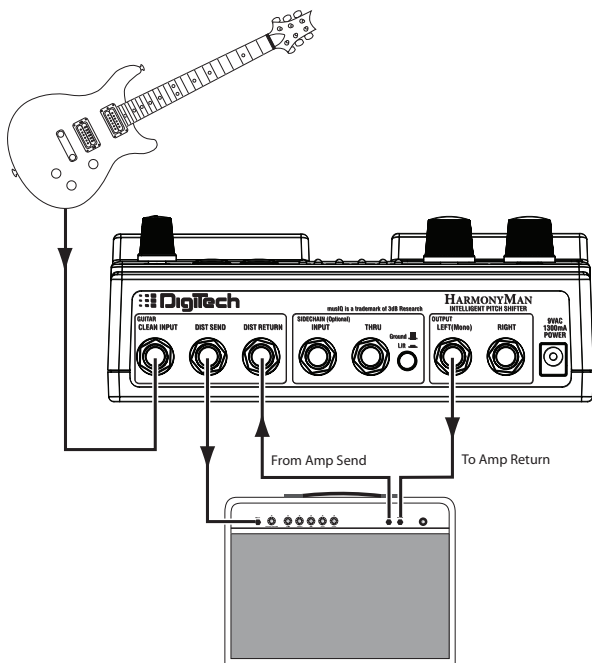
Connection Diagrams

Electric Guitar with Pre-Harmony Distortion



Connection Diagrams

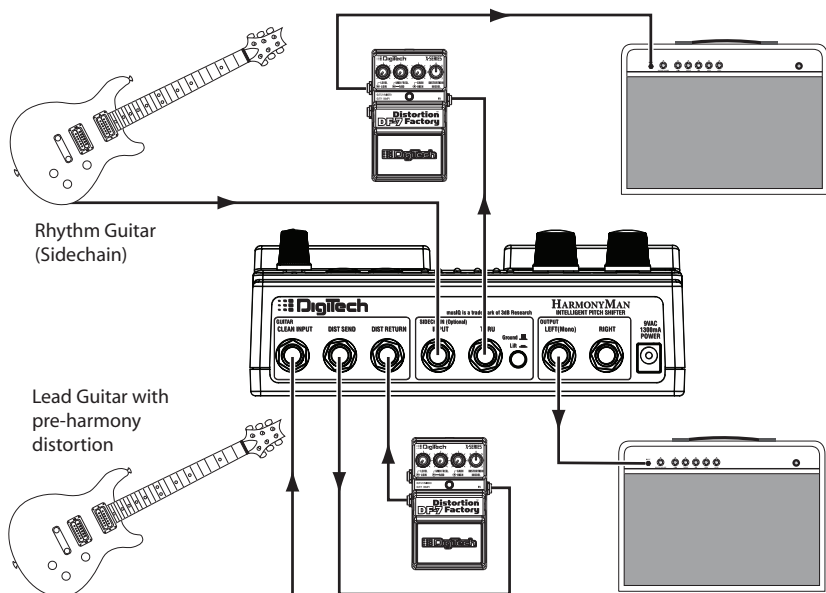
Single Guitar Using Amp Send/Return for Distortion



Note: Be sure to set your amplifier's loop level to -10dB when using the HarmonyMan™ in an Amp Send/Return setup.

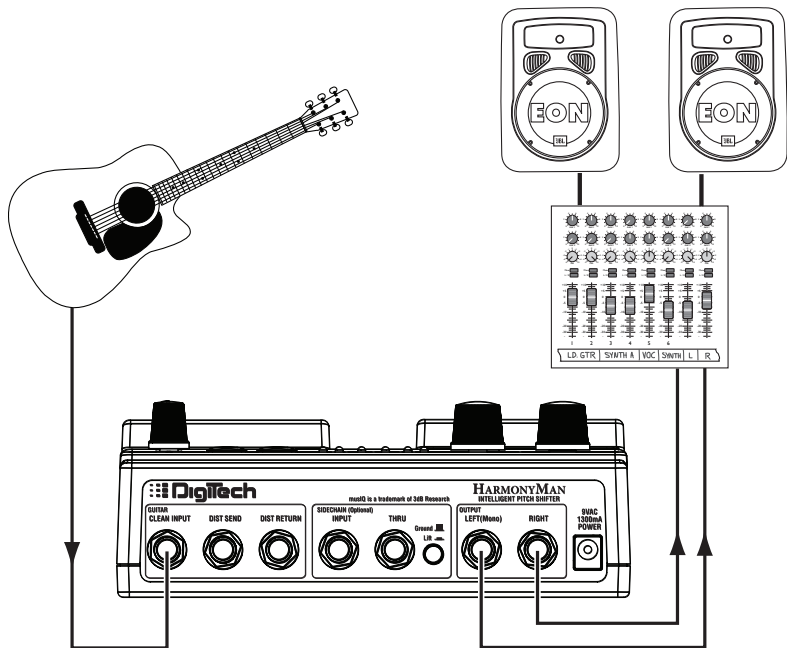
Connection Diagrams

Two Guitars with Pre-Harmony Distortion



Connection Diagrams

Acoustic Guitar to Mixer/P.A.



Troubleshooting

Why does the Harmony Key Display show that a key is set when I try to reset the musIQ™ feature's memory (by pressing, holding, and releasing the Memory Select footswitch without playing a chord)?

When the musIQ memory is reset while the Harmony Effect is on, the manual harmony key and scale are shown in the display until the Harmony is turned off.

Why does the HarmonyMan™ suggest a different key from the one that I think is correct for this song?

The musIQ feature will suggest the key that it determines will work best with the current song. This may not always match the key and scale you would choose for that song. If you want to try a different key and scale, you can manually choose a key and scale (See “Manually Set the Key and Scale” on page 9 for more information).

Why is the Harmony Key Display showing the same key instead of reacting to my chord progression when using a single guitar (no Sidechain)?

Make sure the musIQ feature is enabled. The automatic key recognition is only shown when the musIQ button is on.

Make sure the harmony function is turned off (by pressing and releasing the Harmony On/Off footswitch until the On LED turns off). The key will not change while the harmony function is engaged when no Sidechain signal is connected.

Make sure there is no signal connected to the Sidechain Input. When a signal is connected the Sidechain Input, the Sidechain signal is used to determine the key and scale instead of the lead guitar signal.

Specifications

Connections

Inputs/Outputs

Clean Guitar Input	1/4" mono
Maximum Input Level:	+11 dBu
Input Impedance:	1 M Ω
Distortion Send	1/4" mono
Unity Gain buffered output of Clean Guitar Input	
Distortion Return	1/4" mono
Maximum Input Level:	+11 dBu
Input Impedance:	1 M Ω
Sidechain Input	1/4" mono
Maximum Input Level:	+11 dBu
Input Impedance:	1 M Ω
Sidechain Thru	1/4" mono
Hardwired output from Sidechain Input	
Left Output	1/4" mono
Maximum Output Level:	+16.7 dBu
Output Impedance:	1 k Ω
Right Output	1/4" mono
Maximum Output Level:	+16.7 dBu
Output Impedance:	1 k Ω

Specifications

A/D Performance

Sample Rate Frequency	44.1 kHz
Bit Depth	24-bit Processing

Power

US and Canada:	120 VAC, 60 Hz	Adapter: PS0913B - 120
Japan:	100 VAC, 50/60 Hz	Adapter: PS0913B - 100
Europe:	230 VAC, 50 Hz	Adapter: PS0913B - 230
UK:	240 VAC, 50 Hz	Adapter: PS0913B - 240
Power Input:	9 VAC 1.3 A	
Power Consumption:	7 Watts	

General

Dimensions:	6.7" Width x 5.6" Length x 2.6" Height
Weight:	2.88 lbs

DigiTech® engineers are constantly working to improve the quality of our products. Specifications are therefore subject to change without notice.







DigiTech®
8760 South Sandy Parkway
Sandy, Utah 84070
PH (801) 566-8800
FAX (801) 566-7005
www.digitech.com

HarmonyMan™ Owner's Manual 18-6000-A



A Harman International Company

DigiTech®, HarmonyMan™ and JamMan™ are registered trademarks of Harman International. All other product name and trademarks are the property of their respective owners, which are in no way associated with DigiTech.

musIQ™ is a trademark of 3dB Research Ltd.

©2008 Harman International Industries, Incorporated. All rights reserved